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ABSTRACT

As the first in a series of monographs on competency-based education (CBE), this paper presents background information and exercises to aid instructors in understanding and utilizing performance goals as tools for articulation, program development, and student evaluation. After introductory material discussing the major differences between norm-based and competency-based education, the monograph provides working definitions for "aims," "programs," "performance goals," "course terminal performance objectives," and "enabling objectives." Next, Davies's review of the literature on using, as opposed to writing, performance objectives is summarized before a brief outline of the changes in educational thought on performance goals. The next section provides a general perspective on the value of performance goals in: (1) communicating program content to internal and external audiences, including students, employers, and other institutions: (2) developing courses and articulating them within the program to insure a logical and orderly progression of learning: and (3) evaluating and improving courses. Specific strategies are then presented for using performance goals for these purposes. The monograph concludes with an annotated bibliography. (JP)

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USING PERFORMANCE GOALS

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This series of monographs includes the following:

1. Using Performance Goals
2. Using Performance Objectives
3. Developing a Performance Syllabus
4. Evaluating Performances
5. Motivating Performance Learning
6. Developing and Using Performance Modules
7. Addressing Affective Performance
8. Remediating and Enriching Performance Learning
9. Managing a Performance On The Job
10. Maximizing Teaching/Learning

This is one of ten monographs in a series relating to IMPLEMENTING COMPETENCY BASED EDUCATION IN COMMUNITY COLLEGES developed at Virginia Polytechnic Institute and State University. This project was developed under a grant to St. Clair County Community College and was funded by the Michigan Department of Education, Higher Education Management Services, Occupational Education Unit. Project #33B9-7447-2.

Using Performance Goals

Who is in school for how long and for what purpose has been changing since the beginning of public education in the United States. What is taught, when it is taught and how learning is evaluated have evidenced less change. At the end of the nineteenth century, only about 5 percent of the eligible student population stayed in school until age 18. One of the primary functions of evaluation at that point in time was to select the 5 percent of the student body which would continue formal education beyond the elementary school level. Employment demands were such that the other 95 percent were readily absorbed into the agricultural and non-farm unskilled labor force.

Torshen (1977) provided data which illustrate the changes that have taken place since the late 1800's. In 1899, 95 percent of the 17 million students who were enrolled in schools in the United States were in elementary school. Only 4 percent were in grades 9 through 12 and only 1 percent continued beyond high school (p.). From 1924 to 1962 the dropout rate and point of exit changed radically as evidenced by the following data.

> About 70% of the 1924 fifth graders entered eighth grade whereas more than 70% of the 1962 fifth graders graduated from high school. About 50% of the 1924 fifth graders entered tenth grade and 50% of the 1962 fifth graders entered college. By 1962, the elementary school teacher could predict that over 95% of his students would enter high school and over 50% would enter college. (Torshen, 1977, p. 12).

A society hungry for unskilled and semiskilled hands and backs to do mechanized labor evolved to a society which places a premium on highly trained minds and hands. It forces school attendance, by law, into the secondary level and has a reward structure which strongly encourages formal preparation well beyond the legal requirement.

Obviously, who is in school today and for what reason has dramatically changed since the beginning of the nineteenth century. Just as obviously the schools must have made equally dramatic changes to accommodate the far greater diversity of talent and purpose of its clientele, especially at the community college level. The

nineteenth century notion of normative standards to select candidates for advanced training, however, has been surprisingly resistant to change. The idea of teaching to the average and thereby routing portions of the student population into the shrinking unskilled employment market has persisted.

Competency or performance based education (CBE) is a recent and still frail attempt by educators to develop and refine a model of education more compatible with the challenges of today. Most educators are aware of its problems, its growing pains, its excesses, and its potential for meeting the diverse needs of today's students.

Currently, a great deal of attention is being focused on CBE. The community college professionals may legitimately view CBE in a number of ways depending on past experience, the extent to which the concept has been implemented in their setting, and how it has been implemented. A strong advocacy, through funding demands, has resulted in a mandate to implement. Guidance and assistance in the implementation have often been neglected.

Regardless of one's overall reaction to CBE, it is safe to assume that most professionals are willing to examine and weigh the merits of CBE. The purpose of this monograph is to present strategies for the use of program goals, not how to write goals but rather how to use them once they are written.

Context

What are the differences between CBE and non-CBE? Most of the differences may be summarized under three headings: (a) goal centeredness and specificity, (b) evaluation, and (c) variety. First, CBE focuses on outcomes and provides specific performance expectations which lead up to such outcomes. Second, evaluation is based on the individual student's performance on the specified objectives rather than a comparison with other students or groups. Third, to be successful, CBE must incorporate a wide variety of teaching-learning approaches. Although often associated with individualized instruction, individual instruction, and learning modules, CBE does not advocate nor demand any one approach to teaching-learning.

Supposed innovations in education have spread across the country like viruses. Many have been oversold as panaceas to the problems created by the rapid changes placed on education. Programmed textbooks, teaching machines, commercial learning kits, and many others have often been dissappointing in relation to the high expectations set for them. Most of these "innovations," however, have

merely been accessories or attachments to education. CBE, in contrast, is a philosophy or way of looking at education. It does not accept the "given's" of traditional educational practice. It is much more like occupational programs which accept the responsibility for producing individuals who are ready to enter skilled employment.

Attitudes about CBE among educators vary widely. Negative attitudes seem to relate not so much to the concept of CBE as to how it has been interpreted and implemented. Teachers have been commanded to "change over" to CBE in an unrealistically short period of time and often without adequate technical support. Learning materials of dubious quality have been hurriedly prepared to meet arbitrary timelines set by departments of education, funding agencies, and local educational administrators. The pressure to implement has tended to overlook needed research on both the process and results of CBE.

The biggest problem for many educators, however, is not any of the above. The most difficult aspect is the changing of a lifelong belief in norm-based education. Most feel uncomfortable without basing both instruction and evaluation on "average-above, average-below, average" and similar normative concepts. Related to the importance of the average is the concept that education is designed for groups rather than for individuals. CBE hangs its hat on external performance requirements and totally ignores the idea of comparing students with other students or of describing groups according to some average level of performance. A normal curve of abilities and talents may exist in the classroom or laboratory, but CBE does not require maintenance of any artificial time or methodological barriers. The instructor and administrator who are willing to consider decreasing dependence on the normative concepts, which developed out of the needs of the late 1800's, are ready to consider the potential of CBE.

Definitions

Many of the terms used in education and more specifically in competency based education are used somewhat differently by various authors. The following terms are therefore defined as used in this document.

Aim. An educational aim is a direction to go, a general purpose or mission of an activity, course, program, or even school. An example of a program aim is: "To prepare students for entrance into an agricultural mechanics occupation."

Program. A series of courses which lead students to achieve prespecified goals and objectives on a systematic basis is a program. Usually this consists of two or more courses. Electronics Technology, Office Machine Repair, and Practical Nursing are examples of post-secondary programs.

Performance goal or competency. The two terms are used synonymously and define the knowledges, skills, or judgments desired as outcomes of a specific instructional program. A performance goal describes the general expectations for program graduates or course completers rather than specific or precise behaviors. The characteristics of program and course performance goals are the same except for the level of specificity. An example of a course performance goal is: "Completers of Auto Fuel System (AUTO 180) will be able to adjust a carburetor."

Course terminal performance objective. This indicates prespecified skills, knowledges, or attitudes for persons who complete a specific course. Objectives specify both the conditions and standards of performance. Terminal performance objectives of the courses within a program should lend logically to achievement of the program goals or comptencies. An example of a course terminal performance objective is: "Given the proper tools, the student will service, maintain, and repair fuel systems on small gas engines. Performance will be satisfactory if all engine systems are within manufacturer specifications."

Enabling objective. Instructional objectives state a specific behavior (skill, knowledge or attitude), the conditions under which the behavior is to be demonstrated, and the level of proficiency which is expected. Enabling objectives should lead logically to a course terminal performance objective. An example of an enabling objective for the terminal performance objective listed above is: "Given the necessary tools and a clogged fuel system, the student will clean the fuel tank and fuel lines. After cleaning, fuel must flow freely to the carburetor. The task must be completed within the time specified in a flat rate manual."

Performance Goal Overview

Most instructors have at one time or another asked questions like:

What should I really be teaching?

Of all the skills and content I could teach, which is most critical for the future success of my students?

Would more or perhaps different students enroll in this course or program if they knew what it is all about?

Do prospective employers know what we are doing?

How does my course fit into the total program?

Is there too much overlap between my course and others in this program?

Am I placing too much emphasis on certain areas and not enough on others?

Program goals, properly developed and used, help resolve such questions. Performance goals are the primary method by which students, administrators, labor and industry representatives, parents, and other faculty can define and understand a particular program. Many of the concerns over the use of CBE can probably be resolved by developing adequate goals prior to the specification of performance objectives.

Davies (1976) summed up the primary function of goals with this statement, "There is little pride in improving the efficiency of what we are trying to do, if we ought not to be doing it in the first place" (p. 29).

Literature review. Very little has been written on how to use performance goals. There is a considerable body of literature on how to write both goals and objectives and on how to use behavioral objectives in instruction and evaluation. There is little empirical research on the effectiveness of performance goals and objectives.

Davies (1976) provides one of the few reviews of the literature which summarizes research findings relevant to this topic. He cites a number of generalizations the present research seems to indicate. Among them are:

1. General, Tyler-like objectives are as effective as specific, Mager-type objectives.

2. Children taught by teachers using objectives learn more than children taught by teachers not using objectives.

3. Training teachers in the use of objectives as guides to teaching is worthwhile.

4. No empirical evidence has been reported investigating the usefulness of objectives to curriculum planning or development.

5. It is not worthwhile formally teaching learners how to use objectives as learning guides.

6. It is worthwhile pointing out informally the usefulness of objectives.

7. In conventional teaching providing children with objectives can increase the amount of time needed.

8. In independent learning, providing children with objectives can significantly decrease the amount of time needed.

9. Providing children with objectives has a greater effect when conventional teaching methods are used. They appear to be largely superfluous when prestructured materials like programmed texts are employed.

10. Middle-ability learners benefit more from being provided with the objectives than either upper- or lower-ability learners.

11. Children who tend to be independent benefit less from being provided with objectives than children who are dependent and conscientious.

12. Providing learners with objectives can reduce the reasoning requirements implicit in some topics.

13. Providing learners with objectives reduces initial anxiety.

14. Males appear to benefit more from being provided with objectives than females.

(Davies, 1976, pp. 86, 90)

The above statements use the term **objectives** generically to include the spectrum from very specific to more general objectives and, in some cases, goals.

Many educators feel that the basic idea of performance goals and objectives is new. In actuality, their origin in education can be traced to Hohann Herbert and Herbert Spencer in Germany and England in the early 1900's. Franklin Bobbitt and Werrett Charters seem to be responsible for the introduction and growth of ideas of systematic analysis of instruction in America. The movement died out in this country about 1930 although Ralph Tyler kept the role of objectives in evaluation alive during that period. Hilda Taba and Roger Mager reintroduced the same basic ideas in the early 50's. It was reinforced ultimately by Benjamin Bloom's taxonomy. Interest was heightened in this type of education reform by the Russian Sputnik and the growing American concern for the adequacy of education in math and the sciences.

The ideas of systematic analysis of learning and instruction, the specification of goals and objectives, mastery learning, and criterion-referenced assessment appear to have a common heritage and a rather steady growth with the exception of the period from about 1930 to 1950. During that period there was a wide-spread rejection of "traditional education" in favor of child-centered (vs. subject-centered) approaches.

Recent authors seem to be taking a more moderate approach to what might be called "education as a science." Most seem to be more cautious about claiming any **one** approach to be superior and are more accepting of modifications to the hard-line behaviorist approach.

Summary.

Many years of experience indicate that goals and objectives can have a positive effect on learning for many students in many content areas and within a number of learning situations but not necessarily for all students learning any content in any situation. Little has been empirically established as to the benefits of the use of program goals in the manner advocated in this monograph. A strong logical case can be made for three main uses: (a) communication, (b) program development and modification, and (c) evaluation/improvement. Below are listed several relevant characteristics of performance goals.

1. Performance goals give direction to the development of courses.
2. Performance goals are the unifying factor of the several courses within a program.
3. Performance goals prescribe the development of performance objectives for each course within the program.
4. Performance goals establish the parameters of all the programs in the institutional curricula.
5. Performance goals describe student-oriented outcomes without reference to conditions or criteria.
6. Performance goals describe general accomplishments whereas objectives describe specific or precise performance.
7. Performance goals are developed from occupational requirements and needs of students and community. They are sometimes limited by school or community facilities, equipment or faculty competence.
8. While an educational aim indicates the direction to take, a performance goal actually describes the destination itself.

Implementation Overview

Previous sections of this monograph presented competency based education in general and provided basic definitions necessary to set the stage for consideration of the implementation strategies which follow. This section is designed to provide a general perspective of implementation. Specific strategies are outlined in a subsequent section.

Program goals are useful, in fact, indispensable in three ways:

(a) communication of the intent of the program to both internal and external audiences, (b) development and articulation of the courses within the program with other programs within the overall curriculum, and (c) evaluation and improvement of courses and, in turn, the program itself.

Communication

Communication is used as a catch-all category to indicate all attempts to define the program to any person or group, either within or outside the school. Examples of internal groups are prospective students, counselors, faculty and administrators. External groups include employers, parents, labor organizations, community organizations and agencies, advisory committees and, of course, taxpayer-citizens. Accurate communication of the intent of any program is the beginning point for counseling students to public relations. Program goals provide the most concise definition of the program. A program which is competency based can effectively communicate its intended outcome because the performance goals and competencies are synonymous.

A review of a typical high school, community college, or university catalog will bring back feelings of frustration. Not only are course descriptions vague but the combination of courses into a "program" or curriculum is generally presented without rationale or explanation. Students are left in a position of having to judge the appropriateness of courses and programs with only occupational stereotypes for guidance. Guidance personnel often have little more with which to operate in trying to assist students. These frustrations have often caused students to leave the program because "it was not what I thought it was going to be." Students who have invested time and resources into beginning a program with such naivete experience an even greater loss.

Any public, be it employers, labor representatives, community organizations or others, also deserve and need to know what a given program is designed to accomplish. One need only visit a few community colleges to realize that the program title, "Drafting and Design Technology" may mean something quite different from college to college. Worse yet, different program titles may include approximately the same content and skills as taught under this title. Employers may expect graduates to possess certain competencies based on their experiences with the occupational area within a particular community. The instructor may be teaching different content

and skills derived from a different set of experiences. Clearly communication performance goals may provide the basis for all parties to come together. In a properly designed CBE program, the program goals actually specify the general areas of competence from which there is consensus among the relevant parties.

Development and Articulation

The articulation of courses within any given program can provide for an orderly and logical progression of learning for the student with a minimum of unnecessary duplication or redundancy. Articulation within a program can also help avoid omissions which may later handicap the graduate's placement or advancement within the field.

Articulation of the various programs within the overall curriculum may reveal core competencies which are appropriate to more than one program. Many post-secondary institutions have experienced a proliferation of courses resulting in extensive overlap. These situations produce inefficiency and often yield low enrollments in any particular course. Performance goals permit comparisons across programs, thus providing an opportunity to minimize unnecessary duplication of instruction and facilities.

Performance goals are critical in the development of programs and courses within programs. They set the desired outcomes for the total program and provide guidance for developing the performance objectives of each course within the program. Groups with a legitimate interest in the outcomes of a program should be involved in setting the goals of that program. If advisory groups, administrators, instructors, and students can reach consensus on the goals of a program, courses within the program can be developed or modified with greater confidence.

Proliferation of behavioral objectives and development of accompanying instructional materials without a clear definition of desired program outcomes are evidenced in certain courses and programs. Prioritization of objectives as well as assignment of objectives to courses is facilitated by a concise definition of the program outcomes through goals. Program goals thus become the guidance system for course and curriculum development.

Evaluation and Improvement

Program goals provide the anchor or reference point for evaluation and improvement. Courses may satisfactorily address their objectives but still not facilitate accomplishment of program performance goals. The employer is apt to be more interested in the

graduate who can be certified on the basic program goals than one who has satisfied **X** number of course objectives. Long lists of objectives from specific courses serve as useful teaching and learning sides, but certification of competence should be based on the more general program goals or competencies. For the most part, the conditions and standards of performance objectives are meaningless to employers. They are interested in employees who "can do" in the working setting to their satisfaction. Performance goals, thereby, provide the optimal mediums for evaluation and improvement.

This section has concentrated on the overall notion of performance goal implementation. Specific attention was given to roles that performance goals may play in (a) communication, (b) development and articulation, and (c) evaluation and improvement. The following section will provide specific strategies which will facilitate implementation.

Implementation Strategies

Assume that appropriate goals have been developed. Assume that the benefits of performance goals are worthy. Assume that the overall implementation products are desirable. What then? The following section provides specific strategies for use of performance goals.

Communication Hints

The following is a course descrition from a current catalog.

> Social, cultural and psychological constructs that influence selection and implementation of curricula; integration of social and psychological foundations affecting teaching-learning environments; study of school as a social institution.

This happens to be a description of a university course but equally opaque descriptions may be located in most post-secondary catalogs. What should a person be expected to know or to do as a result of successful completion of this course? By completing a large number of such courses, one can currently be certified as a teacher! The resultant competencies are not obvious. We can do better.

Course descriptions are not intended to do more than provide a brief description of the content of a given course. Okay? But, what does tell the prospective student, parent, employer, or counselor what can be expected of successful completers? Perhaps course outlines can help. How many times have employers or students asked to review your course outlines? About all most of us have to go on is

our personal stereotype of what a "Water Pollution Technologist" or a "Child Care Specialist" does.

As an example more relevant to college instruction, overall goals (competencies) of the "Electronics Technology" program might state: Completers of Electronics Technology Program will be able to:

1. Lay out, build, test, troubleshoot, repair and modify developmental and production electronics equipment.
2. Draw sketches to clarify design details and functional criteria of electronic units.
3. Assemble experimental circuitry (breadboard) to complete prototype models according to technical manuals, engineering specifications, and knowledge of electronic systems and components.
4. Recommend changes in circuitry or installation specifications to simplify assembly and maintenance.
5. Write technical reports and develop charts, graphs, and schematics to describe and illustrate operating characteristics.

Several more broad competencies (program goals) may be necessary to adequately describe and illustrate operating characteristics.

Several more broad competencies (program goals) may be necessary to adequately describe the expectations for successful graduates of a technical program like electronics. The point is, however, such goals communicate to the appropriate audiences the real intents of the program.

As an exercise, try the following. Select the program, certificate, or degree option you know the least about in your institution. Find out what you have to do to determine what the program is really designed to do. (Note: To prepare individuals for a satisfying and rewarding life is not quite specific enough!) How about your program? Do you have a concise set of performance goals that can be shared with students, employers, or other teachers? If you can briefly describe what graduates of your program should be able to **do**, then you have performance goals. Write them!

Activities to consider. Below are provided several specific communication-related activities. Note the checkpoint questions for each suggestion.

1. Present your program goals to your advisory committee. Discuss whether or not they are up to date. Are there new goals which should be added? Are some in need of revision or deletion? What kind of emphasis should be placed on various goals? Are some more

important or critical to job success than others?

2. Discuss the goals for your program with one or more classes of students who are currently enrolled in the program. Do they understand the goals? Do they feel the goals give them direction for learning? Did they know these were expected outcomes of the program before enrolling?

3. Prepare a short questionnaire to incorporate in a follow-up of program completers. Provide an opportunity for the completers who are working in the field for which they were trained to rate and comment on current program goals. Did they know the goals existed? What importance do they place on specific goals? Have their opinions changed over time?

4. Schedule a meeting with counselors or individuals who provide student advisement. Go over program goals to clarify and answer any questions they may have. A discussion of desirable student characteristics for success in the program may be woven into the discussion. Do the goals make sense to these individuals? Would they like to have multiple copies? Do students ask for this kind of information?

5. Investigate the possibility of making program goals available to prospective students either through the course catalog or a separate publication. At a minimum level, make goal statements available as a hand-out in the guidance office or where students register for courses. What reactions would you expect to this service? Do students know where to secure additional information? How long will it take before students demand this information for all programs?

Development, Revision and Articulation Hints

As noted earlier, performance goals may serve as the anchor point for course development, revision, and articulation. The generic notion of articulation requires that all elements of instruction be clearly joined. Thus, the relationships within and among courses must be evident. The quest for clearly-defined relationships becomes the basis for revision and development. Experience has revealed that linkages must be made among program performance objectives. This order will result in a hierarchy of communication devices which move from general to specific. In most cases, the requirements of articulation are met with these three devices. However, if instructors are concerned about overlap, duplication, omission, etc., in specific courses or between two sections of the same course, then the instructional

(enabling) objectives should be added to the approach. This overall approach can have the positive effect of avoiding fragmentation of instruction with large quantities of very specific and often trivial teaching/learning activities.

In summary, articulation within courses and among courses becomes a logical process for revision and development. The process uses performance goals and performance objectives to assess overlap, omissions, and duplication of teaching/learning. Performance goals can become the instrument to insure that the experts have control over intended outcomes of education.

Activities to consider. Below are presented several specific development, revision, and articulation activities. A prerequisite for use of these activities is to write in pencil for editing purposes each program performance goal, each course performance goal, and the performance element from each course terminal performance object on a 3 X 5 card, You need not write the conditions or the standards for performance on the cards.

1. Draw a four-cell matrix with the vertical axis labeled "lo and hi frequency" and the horizontal axis labled "lo and hi complexity." See Figure 1 for a model.

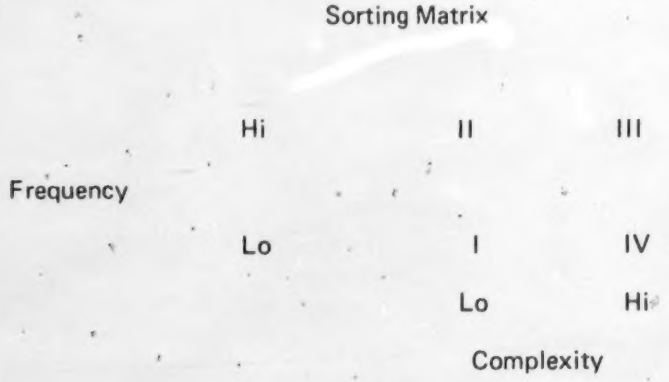

FIGURE 1

Take each competency (goal) and sort for frequency and complexity using the following three steps. (a) Decide whether the competency is done at a lo or hi frequency within the occupation. This will force the competency into the upper or lower half of matrix. Ask yourself

the following lead question: "Self, this competency is of a lo or hi frequency for **(insert occupational area)**?" (b) Decide whether the competency within the occupation is of lo or hi complexity. This will force the competency into the left or right half of matrix. Ask yourself the following lead question: "Self, this competency is of a lo or hi complexity for **(insert occupational area)**?" (c) Place the card accordingly in Quad I, II, III, or IV based upon (a) and (b) above.

2. In place of "occupational area" designated in item 1 above, insert the name of former students. Naturally, you should classify the student name inserted as bright, average, or dull. This process should be immediately helpful in assessing complexity. It should also be of interest to apply the frequency dimension for the given student for the occupational area in which he/she now works. Expect to be surprised by the results. The "bright" student is often in a job for which the competency was not intended. On the other hand, the "dull" student is often doing much better in the occupation than was expected.

3. In place of "occupational area" designed in item 1 above, insert "an entry level employee." This should assist in aligning instruction with crucial elements for employment.

The products of these sorts tend to provide clues for development and revision. Generally speaking, the following four statements will hold true: (a) Lo F - Lo C (Quad I) competencies may be considered as not essential for instruction as students can pick them up on their own. However, these competencies might be very appropriate for special-needs students. (b) Hi F - Lo C (Quad II) competencies tend to be those delivered in survey or beginning courses. (c) Hi F - Hi C (Quad III) competencies tend to be those delivered in courses which provide the bulk of occupational education. (d) Lo F - Hi C (Quad IV) competencies tend to be those competencies associated with specialized courses or for the very adept student. These might also be in-service competencies for the person already in the occupational world of work.

4. Stack and shuffle all of the competency (goal) cards. Pull one card and place it on the floor. Take another card and ask yourself this question: "Self, should the competency (goal) be addressed before or after or at the same time as the competency (goal) on the first card?" Based upon your answer, place the second card above or below or alongside the first card. Do the same for all the other competency (goal) cards. The results of this activity should indicate the chronology for teaching/learning. It should also provide an excellent

test of internal prerequisites. Don't be surprised to find that most of traditional prerequisites are artificial. This activity is particularly useful in organizing course content.

5. Stack and shuffle all the competency (goal) cards. Label a pile for each course taught. Toss a card into the most logical course pile. A variation is to label piles by functions of the occupation and do the same thing. For instance, in **nursing** one might create (a) pulmonary pile, (b) skeletal pile, (c) cardiac pile, (d) ect.. This process should help one to logically cluster instruction.

6. Use any of the above sorts with peers, students, employees, or advisory committees. The use of goals alone will keep the sorts simple but powerful. It is useful to code the various sorts on the back of the card. This will permit you to test your opinions over a period of time.

In summary, it is not uncommon for an occupation to have 300 to 500 instructional (enabling) objectives. These objectives have conditions for performance and standard included. Typically these objectives have evolved from or can be reduced to about 60 to 83 course terminal performance objectives or like number of 60 to 83 course performance goals. Making sense of these competencies tends to boggle the mind. However, a systematic series of sorts can be conducted to help develop, revise, and insure articulation of competency based occupational education.

Evaluation and Improvement Hints

Does successful accomplishment of specific objectives in the courses which make up a program insure competence? Most current-day competency based programs do not make such an assumption. Early advocates of behavioral objectives seemed to feel that immediate post-testing on specific objectives after the completion of instruction was a sufficient evaluation model. The increasing concern for retention, application and transfer of learning to new situation argues for increased use of performance type measures on larger blocks of knowledge and skills. Program goals provide the highest and most general level at which to key evaluation.

Evaluation practices should include not only student evaluation but also evaluation of the courses and ultimately the program itself. The historical pattern of student evaluation has been on a course-by-course basis with successful performance in courses guaranteeing program completion and its accompanying "certification." CBE advocates assessment of competency beyond traditional course grades

and grade point averages. Traditionally, the ultimate evaluation of both the program and its graduates has been an informal review of the success of program graduates on the job or in future educational pursuits. If too high a percentage of program completers are found to be unemployed, underemployed, or unsuccessful on the job or in further education, either the program or the graduates are suspect. The process of evaluation was complicated by the almost total lack of definition and specificity as to what the program was supposed to be accomplishing.

CBE performance goals permit improvement. As a student progresses through the program, a record of performance is created. The record is based on assessments of performance on specific enabling objectives, course terminal performance objectives, and, finally, performance goals. Such measures provide a detailed profile of the student's competence.

The increasing use of work-sample type performance tests, in addition to informal observations and paper and pencil tests, moves the evaluation closer to the ideal of actual competence assessment. Much useful diagnostic information for both student and program remediation and improvement is derived. In terms of course and program improvements, indications of where inadequacies exist, the nature of the inadequacies, and suggestions for improvement the instruction are developed. If an attitude is adopted that a primary role of evaluation is to improve both student and program performance, such information should not be threatening to either students or instructors.

One additional point should be mentioned. The growth of criterion referenced measurement is compatible with both the competency-based movement and performance testing. In criterion-referenced assessment, the question is not, "How does Johnny's performance compare with Mary's or with some group in Iowa?" but, rather, "How does Johnny's performance rate according to predetermined standards?" Such an approach does not assume that there will be so many average, above-average and below-average students but gives each student a chance to demonstrate acceptable levels of competence. A question you might ask yourself is whether you would rather have your teaching performance and your program compared with other programs and teachers or with professional standards which are predetermined and made available to you.

In an ideal situation, the ultimate evaluation of students who have

completed a competency based program would theoretically be a criterion-referenced, performance assessment on the program goals. Admittedly this is ideal and probably not possible. However, a great deal of progress is being made in this type of evaluation. In any event, the closer evaluation can move toward assessing performance goals, the more comfortable one can feel with certifying the competence of graduates.

Activities to consider. Below are listed several specific evaluation and improvement activities. You should feel free to expand the list.

1. Examine current evaluation procedures. How similar are the assessment situations to the actual work or educational setting in which you will expect students to function? Is there over-reliance on paper and pencil knowledge recall type tests? Do the evaluations conducted in individual courses contribute to your knowledge of the competence of students on the goals of the program? Do current evaluations provide for assessing application and retention or are most of them conducted immediately after learning has taken place? Discuss these questions with peers, advisory committees, and administrators.

2. Discuss with other faculty and administrators in your program the feasibility of developing an evaluation centered on program goals. To what extent would assessment of course terminal performance objectives be similar? What performance measures are already available in your field? Would individual student competency charts developed during progress through the program serve the same purpose to prospective employers and for overall program competence? What ways might be feasible to provide the student, the prospective employer and you with a more adequate picture of the graduate's competence?

In summary, evaluation and improvement may be facilitated by direct use of performance goals. More questions are available than specific answers to the questions. However, the measurement of satisfaction by students, employers, and instructors can best be accomplished through the use of performance goals. More specific information related to evaluation may be found in the evaluation monograph in this series.

Annotated Outreach

The following sources have been selected as particularly relevant to the topic of this monograph. Each is briefly annotated so that you may judge the appropriateness to your own particular needs.

Davies, Ivor K. **Objectives in Curriculum Design.** New York: McGraw-Hill Book Company, 1976.

There must be at least 300 books on how to write behavioral objectives. This is not one of them. It presents an excellent section on just that topic but goes well beyond the mere mechanics in several areas. Some of the topics presented which put the whole business of objectives in focus are: the assumptions which underlie the use of behavioral goals and objectives, the arguments **for** and **against** (glory be) their use, a brief history of their use and even a review of what research has shown about their use. This is a good book if you want to go beyond the usual cookbook approach to thinking about curriculum. It is also enjoyable to read a book about curriculum design that doesn't beat you over the head with sermons about behavorial objectives.

Morris, Lynn L. and Fitz-Gibbon, Carol T. **How to Deal with Goals and Objectives.** Beverly Hills: Sage Publications, 1978.

This is one of a series of short paperbacks dealing with evaluation produced by the staff of the Center for Study of Evaluation at U.C.L.A.. It deals primarily with the use of goals and objectives in program evaluation and is directed at persons who will be conducting such evaluations. It is very readable and contains many useful suggestions for instructors and administrators as well as evaluators.

Torshen, Kay P. **The Mastery Approach to Competency-Based Education.** New York: Academic Press, 1977.

Torshen provides an excellent rationale for competency-based education as opposed to what she terms "average-based" education. The combination of the concepts of competency-based education and mastery learning is a primary focus of this book. A mastery model (Objectives, Preassessment, Instruction, Diagnostic Assessment, Prescription, Enrichment and Postassessment) is provided and developed as an instructional approach using the concepts of competency-based education. Torshen does not claim that the model is good for all situations but rather recommends it for those aspects of the curriculum that involve the basic skills, concepts, facts, and attitudes that students cannot afford not to learn.

Powers, Thomas F. (Ed.) **Educating for Careers: Policy Issues in a Time of Change.** University Park: The Pennsylvania State University Press, 1977.

This is not a book about "how-to" but rather a set of readings that raised important questions about vocational-technical educaton

and employment training. The reason for its inclusion is that it presents a very thought-provoking challenge to persons who are dealing with the purposes, aim and goals of occupational education. Topics such as occupational or general education, education beyond the economic model, social priority of adult education, and many others are presented by leading authorities in the field. Much "food for thought" is included in this very interesting and readable book.

Sign Off

This monograph, like none of the others in the series, addresses the global dimensions of CBE. It complements directly all of the other monographs. Perhaps the serious implementer of CBE should reread this monograph. Any takers?

References

Davies, Ivor K. **Objectives in Curriculum Design.** New York: McGraw-Hill Book Company, 1976.

Gronlund, Norman E. **Stating Behaviorial Objectives for Classroom Instrustion.** New York: The MacMillan Company, 1970.

Morris, Lynn L. and Fitz-Gibbon, Carol T. **How to Deal with Goals and Objectives.** Beverly Hills: Sage Publications, 1978.

Powers, Thomas F. (Ed.) **Educating for Careers: Policy Issues in a Time of Change.** University Park: The Pennsylvania State University Press, 1977.

Torshen, Kay P. **The Mastery Approach to Competency-Based Education.** New York: Academic Press, 1977.

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